

=> b reg
FILE 'REGISTRY' ENTERED AT 14:48:58 ON 17 AUG 2009
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STRUCTURE FILE UPDATES: 16 AUG 2009 HIGHEST RN 1174375-84-8
DICTIONARY FILE UPDATES: 16 AUG 2009 HIGHEST RN 1174375-84-8

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TSCA INFORMATION NOW CURRENT THROUGH June 26, 2009.

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=> d que sta 18
L5 STR
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 G1 G1
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Hy~^ C~^ Hy~^ Cb~^ N~^ C~^ Cb
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NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS E7 C E2 N AT 1
ECOUNT IS E4 C E1 O AT 3

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 9
STEREO ATTRIBUTES: NONE
L6 225 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (NC5-NC2NC3 AND
 OC4)/ES
L8 14 SEA FILE=REGISTRY SUB=L6 SSS FUL L5
100.0% PROCESSED 159 ITERATIONS 14 ANSWERS
SEARCH TIME: 00.00.01

=> b zcap
FILE 'ZCAPLUS' ENTERED AT 14:49:04 ON 17 AUG 2009
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FILE COVERS 1907 - 17 Aug 2009 VOL 151 ISS 8

FILE LAST UPDATED: 16 Aug 2009 (20090816/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Jun 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Jun 2009

ZCAplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2009.

CAS Information Use Policies apply and are available at:

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This file contains CAS Registry Numbers for easy and accurate substance identification.

The ALL, BIB, MAX, and STD display formats in the CA/CAplus family of databases have been updated to include new citing references information. This enhancement may impact record import into database management software. For additional information, refer to NEWS 9.

=> d bib abs hitstr 117 tot

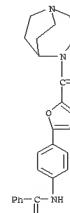
L17 ANSWER 1 OF 2 ZCPLUS COPYRIGHT 2009 ACS on STN
 AN 2005:823712 ZCPLUS
 DN 143:229891
 TI Diazabicyclic aryl derivatives as nicotinic acetylcholine receptor ligands, their preparation and pharmaceutical compositions
 IN Peters, Dan; Olsen, Gunnar M.; Nielsen, Elsebet Oestergaard; Jorgensen, Tino Dyring; Ahning, Philip K.; Timmermann, Daniel B.
 Neurosearch A/S, Den.
 SO Per. Int. Appl., 49 pp.
 CODEN PIXXD2
 DT Patent
 LA English
 FAN,CNT 1

PATENT NO. KING DATE APPLICATION NO. DATE
 PI WO-200505482 A1 20050818 2005WO-EP050405 20050201
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 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
 LY, MD, MG, ML, MN, MR, MT, MU, MW, NC, NE, NL, NO, NZ, PG, PU, PT, RO, RU, SC, SD, SG, SL, SZ, TJ,
 TJ, TM, TN, TR, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
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 MR, NE, SN, TD, TW
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 CA-2555311 A1 20050818 2005CA-002555311 20050201
 EP-713810 A1 20061008 2005EP-000713810 20050201
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 BR-100432075 C 20081112 2005BR-000006881 20050201
 JP-2005066881 C 20070626 2004JP-000551845 20050201
 US-20080227772 A1 20080918 2006US-000586749 20060721
 MX-2006008749 A 20061030 2006MX-000008749 20060802
 IN-2006002846 A 20070706 2006IN-000002846 20060803
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 2004DE-0000041754P P 20040528
 2004US-00574946P P 20040528
 2005WO-EP050405 W 20050201
 OS CASREACT 143:229891; MARPAT 143:229891
 GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention relates to a group of diazabicyclic aryl derivs. I, including its enantiomers, N-oxides, prodrugs, and pharmaceutically acceptable salts, which are cholinergic ligands at the nicotinic acetylcholine receptors. In compound I, n and X are 1 or 2, and Y is independently 1 or 2, and Z is (un)substituted aromatic monocyclic/polycyclic carboxycles/heterocycles; Z is an (un)substituted monocyclic heterocycle, amino, (thio)carboxylamino, imidamido, ureido, thioureido, or guanidino; and L is a bond, CH₂, CH₂CH₂, CH₂C(=O)C(=O)CH₂, O, S, SCH₂, etc. The invention also relates to the preparation of pharmaceutical compositions, containing I or a pharmaceutically acceptable salt of I, together with a pharmaceutically acceptable carrier or diluent, as well as to the use of the compns. for the treatment of diseases and disorders associated with nicotinic acetylcholine receptors. 3-Quinuclidinone hydrochloride was condensed with 4-nitrophenyl anhydride and ring expansion followed by reduction with LiAlD₄ resulted in the formation of a diazabicyclo[3.2.2]non-4-ylcarbonyl. Compound II was acylated with 5-(4-nitrophenyl)-2-furanone anhydride (preparation in situ from the corresponding acid is given) to give III. Palladium-catalyzed hydrogenation of III followed by addition to Et isocyanate gave diazabicyclic derivative IV. Compound IV expressed IC₅₀ value of 0.56 nM in a study on the

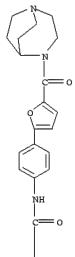
L17 ANSWER 1 OF 2 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)
 inhibition of [³H]-*a*-bungarotoxin in rat brain, representing the 9th-subtype of nicotinic receptors.
 IT 7-(4-(5-((1,4-Diazabicyclo[3.2.2]non-4-yl)carbonyl)furan-2-yl)phenyl)benzamide **862851-87-4P**,
 4-Amino-N-(4-(5-((1,4-Diazabicyclo[3.2.2]non-4-yl)carbonyl)furan-2-yl)phenyl)benzamide **862851-89-6P**,
 3-Amino-N-(4-(5-((1,4-Diazabicyclo[3.2.2]non-4-yl)carbonyl)furan-2-yl)phenyl)benzamide **862851-29-7P**,
 N-(3-(5-((1,4-Diazabicyclo[3.2.2]non-4-yl)carbonyl)furan-2-yl)phenyl)benzamide **862852-30-OP** **862852-33-3P**,
 N-(4-((5-((1,4-Diazabicyclo[3.2.2]non-4-yl)carbonyl)furan-2-yl)phenyl)-2-nitrobenzamide hydrochloride **862852-43-5P**,
 N-(5-((1,4-Diazabicyclo[3.2.2]non-4-yl)carbonyl)furan-2-yl)phenyl)-2-nitrobenzamide hydrochloride
 MI: PH (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses);
 (diazabicyclic aryl derivs. as nicotinic acetylcholine receptor ligands)
 RN 752499-87-5 ZCPLUS
 CN Benzamide, N-(4-((5-((1,4-Diazabicyclo[3.2.2]non-4-yl)carbonyl)-2-furanyl)phenyl)- (CA INDEX NAME)



RN 862851-87-4 ZCPLUS
 CN Benzamide, 4-amino-N-(4-((5-((1,4-diazabicyclo[3.2.2]non-4-yl)carbonyl)-2-furanyl)phenyl)- (CA INDEX NAME)

L17 ANSWER 1 OF 2 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)

PAGE 1-A



PAGE 2-A

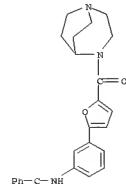


L17 ANSWER 1 OF 2 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)

PAGE 2-A



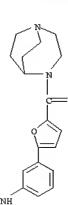
RN 862852-29-7 ZCPLUS
 CN Benzamide, N-(3-((5-((1,4-diazabicyclo[3.2.2]non-4-yl)carbonyl)-2-furanyl)phenyl)- (CA INDEX NAME)



RN 862852-30-0 ZCPLUS
 CN Benzamide, N-(3-((5-((1,4-diazabicyclo[3.2.2]non-4-yl)carbonyl)-2-furanyl)phenyl)-, (2E)-2-butenedioate (1:1) (CA INDEX NAME)

CM 1

CRN 862852-29-7
 CMF C25 M25 N3 O3



CM 2

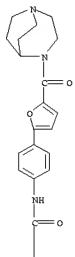
CRN 110-17-8
 CMF C4 H4 O4

Double bond geometry as shown.

HO₂C / E / CO₂H

L17 ANSWER 1 OF 2 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)
 RN 862852-33-3 ZCPLUS
 CN Benzamide, N-[4-(5-(1,4-diazabicyclo[3.2.2]non-4-ylcarbonyl)-2-furanyl)phenyl]-2-nitro-, hydrochloride (1:1) (CA INDEX NAME)

PAGE 1-A



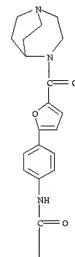
PAGE 2-A



● HCl

RN 862852-43-5 ZCPLUS
 CN Benzamide, N-[4-(5-(1,4-diazabicyclo[3.2.2]non-4-ylcarbonyl)-2-furanyl)phenyl]-2-nitro- (CA INDEX NAME)

L17 ANSWER 1 OF 2 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)
 PAGE 1-A



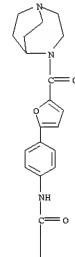
PAGE 2-A



IT 862851-38-5, N-[4-(5-(1,4-Diazabicyclo[3.2.2]non-4-ylcarbonyl)furan-2-yl)phenyl]-4-nitrobenzamide **862851-90-9**,
 N-[4-(5-(1,4-Diazabicyclo[3.2.2]non-4-ylcarbonyl)furan-2-yl)phenyl]-3-nitrobenzamide **862852-35-5**,
 N-[4-(5-((1,4-Diazabicyclo[3.2.2]non-4-ylcarbonyl)furan-2-yl)phenyl)-4-nitrobenzamide hydrochloride **862852-37-7**,
 N-[4-(5-((1,4-Diazabicyclo[3.2.2]non-4-ylcarbonyl)furan-2-yl)phenyl)-3-nitrobenzamide hydrochloride
 PU: RCT (Reactant); SPM (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (Intermediate); preparation of diazabicyclic aryl derivs. as nicotinic acid-metabolite receptor ligands)
 RN 862851-88-2 ZCPLUS
 CN Benzamide, N-[4-(5-(1,4-diazabicyclo[3.2.2]non-4-ylcarbonyl)-2-furanyl)phenyl]-4-nitro- (CA INDEX NAME)

L17 ANSWER 1 OF 2 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)

PAGE 1-A



PAGE 2-A



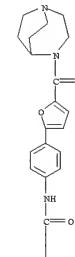
RN 862851-90-9 ZCPLUS
 CN Benzamide, N-[4-(5-(1,4-diazabicyclo[3.2.2]non-4-ylcarbonyl)-2-furanyl)phenyl]-3-nitro- (CA INDEX NAME)

L17 ANSWER 1 OF 2 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)

PAGE 2-A



PAGE 1-A



PAGE 2-A



● HCl

RN 862852-37-7 ZCPLUS
 CN Benzamide, N-[4-(5-(1,4-diazabicyclo[3.2.2]non-4-ylcarbonyl)-2-furanyl)phenyl]-3-nitro-, hydrochloride (1:1) (CA INDEX NAME)

PAGE 1-A

PAGE 2-A

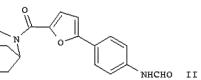
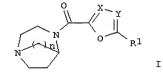
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L18 ANSWER 1 OF 1 ZCPLUS COPYRIGHT 2009 ACS on STN
 AN 2004:740327 ZCPLUS
 DN 141:260783
 TI Preparation of diazabicyclic aryl derivatives as cholinergic ligands at the nicotinic acetylcholine receptors
 IN Peters, Dan; Olsen, Gunnar M.; Nielsen, Elsebet Ostergaard; Jorgensen, Tino Dyring; Ahring, Philip K.
 PA Neurosearch A/S, Den.
 SO PCT Int. Appl., 48 pp.
 CODEN PIXXD2
 DT Patent
 LA English
 FAN,CNT 1

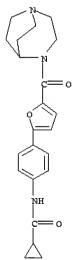
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
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| WO-2004076453 | A1 | 20040910 | 2004WO-EP050079 | 20040204 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LY, LV, LS, MA, MD, MG, MN, MR, MT, MU, NE, NG, NK, NL, NO, PR, RW, BW, GH, GI, KE, LS, MW, MY, ND, NG, NK, NG, NL, BE, BG, CH, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU-2004056200 | A1 | 20040910 | 2004AU-000215658 | 20040204 |
| CA-2518675 | A1 | 20040910 | 2004CA-002518675 | 20040204 |
| EP-2004-1599476 | A1 | 20051130 | 2004EP-000707948 | 20040204 |
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| BR-2004057216 | A | 20061124 | 2004BR-000007216 | 20040204 |
| CN-217300 | A | 20060124 | 2004CN-080002423 | 20040204 |
| CN-1317280 | C | 20070523 | | |
| JP-2006519208 | T | 20060824 | 2006JP-000502001 | 20040204 |
| NE-540998 | A | 20080630 | 2004NE-000540998 | 20040204 |
| RU-2338146 | C2 | 20081120 | 2005RU-000118997 | 20040204 |
| US-2006018789 | AI | 20080607 | 2005US-0000018789 | 20040204 |
| IN-200502058 | A | 20070831 | 2005IN-00002058 | 20040204 |
| HK-1084110 | A1 | 20070928 | 2006HK-000104352 | 20040204 |

PRPA1 2003DK-000000310
 2003EP-0044981P
 2003EP-0044981P
 2003EP-004820240
 2003EP-00482022P
 2004WO-EP050079
 OS MARPAT 141:260783
 GI



AB Title compds. represented by the formula I (wherein X, Y = independently CR2, CR3, N; R1 = H, (cyclo)alkyl, halo, etc.; R2, R3 = independently H, (cyclo)alkyl, alkyl, nitro, aryl, etc.; n = 1-3; and their enantiomers, any mixture of enantiomers, a prodrug, or pharmaceutically acceptable salts thereof) were prepared as cholinergic ligands at the nicotinic acetylcholine receptors.

L18 ANSWER 1 OF 1 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)

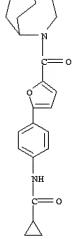


RN 753499-92-2 ZCPLUS
 CN Cyclopropanecarboxamide, N-[4-[5-(1,4-diazabicyclo[3.2.2]non-4-ylcarbonyl)-2-furanyl]phenyl]-, (2E)-2-butenedioate (1:1) (CA INDEX NAME)

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CRN 753499-91-1

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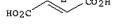


CM 2

CRN 110-17-8

CMF C4 H4 O4

Double bond geometry as shown.



OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L18 ANSWER 1 OF 1 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)
 receptors. For example, reaction of 1,4-diazabicyclo[3.2.2]non-4-ylmethanone and EG-foamate gives in 53% yield. II shows inhibitory effect of the compound on the N-methyl-D-aspartate (NMDA) receptor with IC50 value of 0.17 μ M. Thus, I and their pharmaceutical compns. are useful as cholinergic ligands at the nicotinic acetylcholine receptors for the treatment of the central nervous system (CNS), the peripheral nervous system (PNS), diseases or disorders related to smoking, alcohol, narcotics, nicotine diseases or disorders, diseases or disorders related to neuro-degeneration, diseases or disorders related to inflammation, pain, and withdrawal symptoms caused by the termination of abuse of chem. substances (no data).

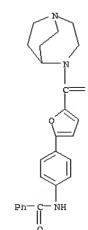
IT 753499-98-6P 753499-91-1P 753499-92-2P

PL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

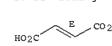
RN 753499-88-6 ZCPLUS
 CN Benzamide, N-[4-[5-(1,4-diazabicyclo[3.2.2]non-4-ylcarbonyl)-2-furanyl]phenyl]-, (2E)-2-butenedioate (1:1) (CA INDEX NAME)

CM 1

CRN 753499-87-5
 CMF C25 H25 N3 O3



Double bond geometry as shown.



RN 753499-91-1 ZCPLUS
 CN Cyclopropanecarboxamide, N-[4-[5-(1,4-diazabicyclo[3.2.2]non-4-ylcarbonyl)-2-furanyl]phenyl]- (CA INDEX NAME)

L18 ANSWER 1 OF 1 ZCPLUS COPYRIGHT 2009 ACS on STN (Continued)
 RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

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(FILE 'HOME' ENTERED AT 14:29:56 ON 17 AUG 2009)

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FILE 'REGISTRY' ENTERED AT 14:30:24 ON 17 AUG 2009

FILE 'ZCAPLUS' ENTERED AT 14:30:24 ON 17 AUG 2009
L2 TRA L1 1- RN : 74 TERMS

FILE 'REGISTRY' ENTERED AT 14:30:24 ON 17 AUG 2009
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L4 46 L3 AND NC5-NC2NC3/ES AND OC4/ES

L5 STR

L6 225 (NC5-NC2NC3 AND OC4)/ES

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L8 14 L5 FULL SUB=L6
SAV TEM J749C1G2/A L8

L9 11 L8 AND L3

L10 3 L8 NOT L9

L11 2599 C25H25N3O3

L12 4 L11 AND L6

L13 3 L12 AND L3

L14 1 L12 NOT L13

L15 11 L9,L13

L16 3 L10,L14

FILE 'ZCAPLUS' ENTERED AT 14:47:41 ON 17 AUG 2009

L17 2 L15

L18 1 L16

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